

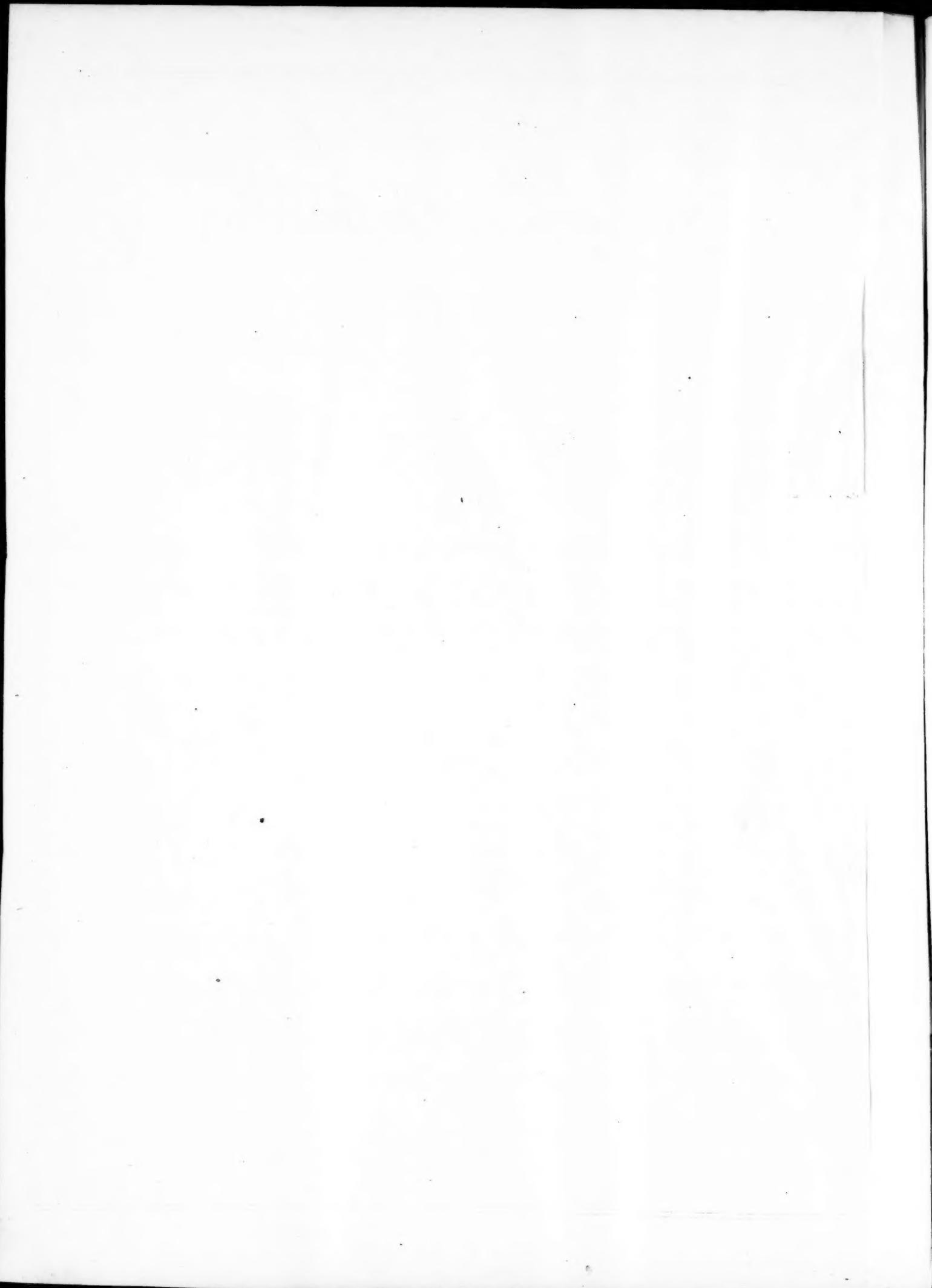
Mechanical Engineering

The Journal of the American Society
of Mechanical Engineers

Index to Volume 52

January—December
1930

Published by
The American Society of Mechanical Engineers
29 West Thirty-ninth Street, New York



620.6
MEJ
V.52

Index to Mechanical Engineering

Volume 52, January–December, 1930

(BR) denotes Book Review, (C) Correspondence, (CT) Conference Table, (D) Discussion, (Ed) Editorial.

Abbott, William Lamont		
Biography.....	289	
Abrasive Roll		
Machine-tool appliance for grinding.....	858	
Accident Prevention		
Iron and steel industry.....	1045	
Welding, safety rules for gas equipment with special reference to.....	799	
Accidents		
See Industrial Accidents		
Adams, Edward Dean		
Early hydraulic-turbine history.....	395	
Adamson, Dr. Daniel		
Obituary (Ed).....	1108	
Aerial Navigation		
See Aerial Transportation; Aviation		
Aerial Transportation		
See also Aeronautics; Aircraft; Air Mail; Airplanes; Airports		
Air transport and civil flying development	6	
Air-transport mileage of the world.....	7	
Business relation to.....	919	
Fare reductions (Ed).....	568	
Flying from the private-owner's standpoint.....	974	
Future of.....	596	
Paris to New York by air (Ed).....	934	
Radio beacons, directive, safety results expected from.....	847	
Reasons most air lines do not pay.....	787	
Aerodromes		
See Airports		
Aerodynamics		
See also Aeronautics; Airplanes		
Applied, developments in science of.....	489	
Bodies moving through air, pressures on.....	499	
Dynamic similarity, theory of.....	500	
Friction on thin plate.....	500	
Leonardo da Vinci's studies.....	888	
Progress.....	5	
Simplified aerodynamics (BR).....	942	
Theoretical treatment.....	499	
Wing-lift theory.....	499	
Aeronautical Education		
Advance in.....	490	
Expert-pilot training.....	787	
Instrument flying, training in.....	63	
Aeronautical Literature		
Rare collections acquired through grant from Daniel Guggenheim fund for promotion of aeronautics.....	845	
Aeronautic Engines		
See Airplane Engines		
Aeronautics		
See also Aerial Transportation; Aerodynamics; Airplanes		
Air meet at Chicago (Ed).....	937	
Dayton meeting.....	729	
Developments during Great War.....	486	
History of practical aviation.....	485	
Langley and the Wrights, work of.....	485	
Motorless flight.....	986	
National Advisory Committee for Aeronautics Conference at Langley Field.....	767	
Progress in.....	3	
Aeroplanes		
See Airplanes		
Agricultural Industry		
Application of engineering to.....	956	
Air Brakes		
Progress in 50 years.....	475	
Air Compressors		
High-pressure type of G. and J. Weir, Ltd., Cathcart, Glasgow.....	619	
Air Conditioning		
See Heating and Ventilation		
Aircraft		
See also Airplanes; Airships		
Coefficients of efficiency of certain types.....	149	
Confidence in (Ed).....	1006	
Fluid dynamics for designers (BR).....	90	
Navigation of (BR).....	646	
New types of.....	489	
Pilot training—see Aeronautical Education		
Aircraft Engines		
See also Airplane Engines		
Torque meter for.....	989	
Aircraft Instruments		
See Measuring Instruments		
Aircraft Materials		
A.S.T.M. meeting at Atlantic City (Ed).....	802	
A.S.T.M. meeting, portions of papers read at.....	781	
Specifications and materials control.....	786	
Air Currents		
See Aerodynamics		
Air Law		
Landing of seaplanes on lakes.....	1080	
Air-Lift Pumps		
See Pumps		
Air Mail		
See also Aerial Transportation; Aviation Mileage and traffic statistics for privately operated routes.....	7	
Air Navigation		
See Aviation; Aerial Transportation		
Air Pilots		
Training—see Aeronautical Education		
Airplane Brakes		
Sikorsky multiple-disk brake.....	222	
Airplane Construction		
See Aerodynamics; Aeronautics; Aircraft; Airplane Engines		
Airplane Design		
See Aerodynamics; Aeronautics; Aircraft; Airplane Engines; Airplanes		
Airplane Engines		
Anti-freeze compounds, special.....	222	
Approved-type certificates issued in 1929.....	4	
Argus As 8.....	1081	
Circulation of lubricating oil in.....	536	
Failures, causes of.....	784	
Fuel-spray aero engine.....	922	
High-temperature liquid cooling.....	63	
Junkers aircraft engine.....	989	
Materials of construction.....	783	
Power-plant developments.....	489	
Rolls-Royce Schneider trophy engine, 536, Six years' progress in water-cooled types.....	618	
Rolls-Royce Schneider trophy engine, 536, Six years' progress in water-cooled types.....	986	
Airplane Manufacture		
See Aeronautics; Airplane Design; Airplane Engines		
Airplane Propellers		
Controllable-pitch type.....	62	
Airplanes		
See also Aerial Transportation; Aeronautics; Aircraft		
Automatically controlled (Ed).....	85	
Barling low-wing monoplane.....	705	
Coefficients of efficiency for various types of.....	150	
Design and construction.....	4	
Design trends.....	971	
Mechanics rigging handbook (BR).....	645	
Military aircraft progress in 1929.....	8	
New York Air Show (Ed).....	641	
Performance, effect of span on.....	619	
Protective coatings.....	782	
Safe aircraft, development of.....	488	
Villiers hydro aeroplane with slotted wings.....	705	
Why does an airplane fly?.....	705	
Airports		
See also Aerial Transportation		
Landing fields in the United States on June 30, 1929.....	12	
Landscaping of.....	13	
Lighting.....	13	
Marking of.....	13	
Proximity and accessibility to city.....	12	
Air Pumps		
See Air Compressors		
Air Resistance		
See Aeronautics		
Airships		
See also Aircraft		
Commercial possibilities of (Ed).....	935	
"Graf Zeppelin" circumnavigation of the world.....	11	
Metalclad dirigible "ZMC-2".....	489	
"R-101" disaster.....	1081	
Air Transport		
See Aerial Transportation; Aviation		
Air Transportation		
See Aerial Transportation; Aviation		
Air Valves		
Automatic air reducing valve.....	619	
Airways		
See Aerial Transportation; Airports		
Aldrin, Edwin E.		
Progress in aeronautics.....	3	
Alford, L. P.		
Management's responsibility for industrial accidents.....	1048	
Progress in manufacturing.....	401	
Allen, C. M.		
The salt-velocity method of water measurement.....	375	
Allen, Edmund T.		
Safety in aerial navigation through radio communication.....	847	
Allen, Horatio		
Biography.....	290	
Alloy Steels		
Chromium-copper structural steels.....	856	
Development of.....	416	
Field.....	1013	
Guns cast centrifugally from.....	856	
Properties of some steels containing chromium.....	919	
Alloys		
See also Alloy Steel; Aluminum Alloys		
Copper alloy capable of being hardened.....	64	
Volume changes during solidification.....	205	
Aluminum		
Aluminum products and their fabrication (BR).....	872	
Increasing use.....	533	
Machining, cutting angle for.....	542	
Aluminum Alloys		
Hiduminium.....	712	
American Association for the Advancement of Science		
Cleveland meeting (Ed).....	1110	
"American Machinist"		
A.S.M.E. fiftieth anniversary number (Ed).....	568	
American Society of Mechanical Engineers		
Annual Meeting papers.....	1020	
Annual Meeting program.....	1021	
Boiler Code—see Boiler Code		
Dayton aeronautical meeting.....	729	
Detroit meeting.....	727	
Fiftieth anniversary impressions.....	509	
Fiftieth annual meeting.....	88	
Fifty years of.....	261	
First annual meeting, register of.....	260	
Foreword to April issue of "Mechanical Engineering" by President Piez—"What Is Not Yet, May Be".....	259	
National meeting of the Oil and Gas Power Division at State College, Pa., June 12 to 14, 1930.....	804	
Power test codes—see Power Test Codes		
Representative members of the A.S.M.E., roster of former.....	305	
Student engineers at French Lick (Ed).....	1110	
Technical development, history of.....	309	
Wood Industries Division, fifth annual meeting (Ed).....	1110	
American Society of Refrigerating Engineers		
Annual meeting (Ed).....	84	
American Standards Association		
American Railway Association contributing to A.S.A.	717	
Year book.....	866	
American Welding Society		
Annual report (Ed).....	640	
Ammonia		
Superheated vapor, properties of.....	548	
Amphibian Planes		
See Aerial Transportation; Airplanes		
Angel, James Rowland		
Engineering education—A layman's view.....	1	
Anti-Freeze Solutions		
Airplane engine use.....	222	
Special liquids for (Ed).....	85	
Anti-Friction Bearings		
See Bearings; Bearings, Roller		
Anti-Knock Compounds		
Tetraethyl lead on flame and pressure propagation.....	75	
Applied Mechanics		
Calculation of natural frequencies of vibration of structures and of critical speeds of rotating machinery.....	607	
Developments (BR).....	1113	

- Fifty-year progress report..... 493
 International Congress at Stockholm..... 1012
- Arc Welding**
 See Welding
- Armitage, J. B.**
 The influence of standardization in machine design..... 211
- Arrol, William**
 Biography..... 297
- Aspinwall, John Audley Frederick**
 Biography..... 298
- Atterbury, William Wallace**
 Biography..... 303
- Autogyro**
 Cierva Mark III..... 787
- Automobile Accidents**
 Accident facts, 1930 (Ed)..... 641
- Automobile Drives**
 Gillett automatic clutch and free wheel..... 1083
 Millam free wheel and sprag..... 860
- Automobile Engines**
 Hesselman oil engine..... 1082
- Automobile Industry**
 History of the last fifty years..... 491
 Influence on materials, processes, and organization..... 491
 New meaning of saturation in (Ed)..... 241
- Automobiles**
 Bantam types (Ed)..... 934
 Bucciali front-wheel drive car..... 544
 Engineering problems..... 1070
 New York show..... 167
 Steam motor car (C)..... 634
- Automotive Fuels**
 See Anti-knock compounds
- Automotive Industry**
 See Automobile Industry
- Aviation**
 See also Aerial Transportation; Aerodynamics; Air Mail
 American commercial, post-war developments of..... 487
 Commercial lines in Soviet Russia..... 149
 League of Nations air fleet (Ed)..... 638
 Military value of..... 181
 Recent progress in..... 985
 Safety factors (Ed)..... 639
- Azbe, Victor J.**
 The photographic recording of smoke..... 504
- B**
- Babcock, George H.**
 Biography..... 279
- Bailey, Alex D.**
 Carrying the load..... 831
- Baker, Benjamin**
 Biography..... 294
- Balancing**
 Rotating machine parts..... 493
- Battleships**
 See Naval Vessels
- Baud, R. V., Wahl, A. M., and Nadai, A.**
 Stress distribution and plastic flow in an elastic plate with a circular hole..... 187
- Bauschinger, Johann**
 Biography..... 293
- Beacons**
 See Radio Beacons; Aerial Signals and Signaling
- Beams**
 Bending a heavy I-beam (CT)..... 238, 566, 720
 Notched, stresses in..... 624
- Bearings, Anti-Friction**
 See also Bearings; Bearings, Roller
- Bearings**
 Chemical composition and physical properties of sand-cast and permanent-mold-cast bearings..... 789
 Multiple-pad construction..... 115
- Bearings, Journal**
 Design, general axioms for successful..... 114
- Bearings, Roller**
 Applied to cars..... 477
- Bechtel, A. L.**
 Bending a heavy I-beam (CT)..... 238
- Berger, George G.**
 Fundamentals of management (C)..... 239
- Bessemer, Henry**
 Biography..... 295
- Bevel Gears**
 See Gears and Gearing
- Billings, Charles Ethan**
 Biography..... 281
- Bits**
 See Cutting Tools
- Black, Archibald**
 Air-transport fare reductions (Ed)..... 568
 Simplified aerodynamics..... 942
- Blake, A. D., and Swain, P. W.**
 Fifty years of power..... 321
- Blooming Mills**
 Italian three-high blooming and slab-blooming mill..... 549
- Blowers**
 See Fans
- Boiler Code**
 Boiler construction code revisions and addenda..... 77
 Errata..... 1102
- Fusion welding of pressure vessels, recommended procedure for**..... 78
- Interpretations by Boiler Code Committee**..... 81, 565, 630, 721, 801, 864, 1101
- Revisions and addenda**..... 557
- Welding for boilers, pressure vessels, and steam lines**..... 546
- Welding, specifications proposed for**..... 235
- Boiler Code Committee, Work of**
 Interpretations of code..... 81, 565, 630, 721, 801, 864, 1101
- Boiler Control**
 Siemens system..... 67
- Boiler Corrosion**
 See also Corrosion
 Boiler-metal embrittlement (C)..... 82
- Boiler Feedwater**
 See Feedwater
- Boiler Furnaces**
 Features of recent boiler installations..... 15
 Firing with oil..... 336
 Wall cooling..... 336
 Water-cooled..... 704
- Boiler Plates**
 Embrittlement (C)..... 239
- Boiler Scale**
 See Boiler Corrosion
- Boiler Tubes**
 Thickness of..... 715
- Boilers**
 Babcock & Wilcox boiler of 150 hp. which won the award at Philadelphia in 1876..... 361
 Benson marine boiler with air preheater..... 710
 Clarkson tube silencer..... 64
 Coal-dust firing for Lancashire boilers without a pre-furnace..... 226
 Cochran waste-heat boiler installed with a Doxford engine..... 155
 Efficiencies..... 337
 Feed systems, high-pressure..... 991
 Fifty-ninth street station of the Interborough Rapid Transit Company..... 362
 Fusible tin plugs for..... 221
 High-pressure designs at Edgar station, Edison Electric Illuminating Company of Boston, progressive..... 363
 High-pressure steam on board ship..... 709
 High-temperature developments..... 365
 Higher steam temperatures..... 15
 Increase in size..... 15
 Locomotive, high pressures for..... 464
 Radiant-type..... 229
 Seamless forged steel drums for high-pressure work, machining..... 751
 Steam generators..... 359
 Super-Lancashire type..... 1084
 Super-pressure steam, problems involved in operation with..... 601
 Water-tube boiler, new German..... 226
 Water-tube type advent of..... 359
 Wignall-Wollaston gas producer..... 227
- Bonus Systems**
 See Wage Payment Plans
- Book Reviews**
 Airplane mechanics rigging handbook, by Rutherford S. Hartz and Elzor E. Hall..... 645
 Applied mechanics, by Frederic N. Weaver..... 1113
 Engineering mechanics, by William E. Brooke and Hugh B. Wilcox..... 644
 Fundamentals of fluid dynamics for aircraft designers, by Max M. Munk..... 90
 Gages and fine measurements, by F. H. Rolt..... 645
 German treatise on heat engines, by A. Loschge..... 731
 Group incentives, by C. C. Balderton..... 808
 Industrial heat transfer, by A. Schack..... 732
 Ingenious mechanisms for designers and inventors, by Franklin D. Jones..... 1015
 Les applications des rayons X, by J. J. Trillat..... 1112
 Machine design, by P. H. Hyland and J. B. Klemm..... 643
 Principles of engineering economy, by Eugene L. Grant..... 1014
- Quantum mechanics**, by Edward U. Condon and Philip M. Morse..... 1112
 Report of the investigation of engineering education, 1923-1929..... 940
 Robots or men? by H. Dubreuil..... 941
 Scientific management in American industry, by The Taylor Society..... 168
 Sheet steel and tin plate, by R. W. Shannon..... 1112
 Simplified aerodynamics, by Alexander Klemm..... 942
 Standard costs, by G. Charter Harrison..... 1014
 Strength of materials, by S. Timoshenko..... 1112
 The aluminum industry, by J. D. Edwards, F. C. Frary, and Zay Jeffries..... 872
 The navigation of aircraft, by Logan C. Ramsey..... 646
 Wage incentive methods, by Charles Walter Lytle..... 643
 Work routing in production, by John Younger..... 731
- Book Reviews and Library Notes**
 90, 168, 247, 573, 643, 731, 808, 872, 940, 1014, 1112
- Books Received**
 Brief notes on new books received by Library..... 90, 169, 247, 573, 646, 732, 809, 872, 942, 1015, 1114
- Brakes**
 See Air Brakes; Airplane Brakes; Electric Brakes
- Bramwell, Frederick Joseph**
 Biography..... 293
- Brashear, John Alfred**
 Biography..... 286
- Breed, E. M.** The Pelton wheel..... 386
- Bridges**
 Hudson River suspension..... 587
 Tests on riveted and welded types..... 236
- Buckingham, Earle**
 Gages and fine measurements (BR)..... 645
- Buildings**
 Electric steam heating for..... 621
 Room cooling..... 356
- Bullets and Shells**
 Markings on when fired from small arms,..... 107, 1065
- Burners, Pulverized-Coal**
 See Pulverized-Coal Burners
- Business Conditions**
 Business cycles and the present depression (Ed)..... 936
 Predictions regarding (Ed)..... 1109
- By-Products**
 Utilize every possibility of (Ed)..... 723
- C**
- Cables**
 See Wire Rope
- Callendar, Hugh Longbourne**
 Obituary..... 245
- Calorimeters**
 See Instruments and Apparatus..... 1093
- Cammen, Leon**
 The military value of aviation..... 181
- Campbell, E. P.**
 Efficiency of industrial workers (CT)..... 566
- Canadian Provincial Boiler Inspectors**
 Conference of..... 730
- Canet, Gustave**
 Biography..... 296
- Carman, Edwin S.**
 Biography..... 287
- Carboloy**
 See Tungsten Carbide
- Carbon-Manganese Steel**
 See Alloy Steels
- Cargo Handling**
 See Materials Handling
- Carnegie, Andrew**
 Biography..... 298
- Carpenter, Howard B.**
 Treating wood for use in lining refrigerator cooling rooms (CT)..... 1004
- Carpets**
 Improvements in manufacture..... 446
- Cars**
 Improvements and developments in materials..... 477
- Cars, Freight**
 Capacities and weights..... 472
 Development..... 470
- Cars, Passenger**
 Development of..... 473

Heating system.....	473	Coode, John	295	Comparison with gasoline engines.....	789
Lighting.....	474	Biography.....	295	Compounding and supercharging of.....	711
Case Hardening		Cooley, Mortimer Elwyn	287	Diesel-steam plant in a printing house.....	861
See Nitridation		Biography.....	287	Generic name for injection oil engines.....	970
Casey, Thomas J.		Cooling		Marine installations with particular reference to auxiliary machinery.....	858
Leaky seams and rivets in boilers following use of water softeners (CT).....	162	See also Buildings, Room Cooling		Peak-load use.....	622
Cast Iron		Buildings, successful use in.....	356	Peak-load work in Germany.....	622
High-test.....	593	Water, substitutes for (Ed).....	85	Road transport applications.....	789
Manufacture.....	416	Cooling Towers		Story of.....	349
Tensile strengths from 30,000 to 60,000 lb. per sq. in.....	214	See Water Cooling Towers		Supercharging blower for.....	546
Transverse tests on (C).....	933	Cooper, Peter	291	Use in naval vessels.....	484
Widening sphere of (Ed).....	639	Biography.....	291	Vulcan coupling for geared type.....	541
Casting Machines		Correspondence		Diesel, Rudolph	
Permanent-mold machines.....	775	See pp. 82, 163, 239, 566, 633, 801, 867, 933, 1001, 1102		Biography.....	299
Cathode Oscillographs		Corrosion		Dilot, J.	
See Oscillographs, Cathode		See also Boiler Corrosion		How safe is a factor of safety?.....	984
Caustic Embrittlement		Influence of stress range and cycle frequency on.....	855	Diphenyl	
See Feedwater Treatment		Corrosion Prevention		Application to boilers.....	64
Cement		Foiling as protection.....	788	Direction-Finding Apparatus	
Chromite-base.....	621	Protecting steel parts of airplanes.....	782	See Radio Beacons	
Hot, physical properties of.....	996	Cosmic Rays		Domestic Heating	
Census		Notes on.....	698	See Heating and Ventilation	
Machines for.....	642	Costs		Donald, W. J.	
Central Stations		Standard (BR).....	1014	Decentralized employee training.....	963
See Power Plants		Couplers		Dodge, James Mapes	
Centrifugal Pumps		Automatic, development of.....	476	Biography.....	283
See Pumps, Centrifugal		Couplings		Dow, Alex	
Chaney, Lucian W.		Hydraulic for locomotives driven by internal-combustion engines.....	625	Biography.....	289
Engineering revision an essential factor in accident prevention.....	1045	Reaction-type, British fluid-transmission devices of.....	923	Draft Gears	
Charters, D. B.		Steely-Shaw flexible coupling.....	623	Development.....	476
Influence of standardization in quantity production.....	213	Cox, O. L.		Draft Tubes	
Christie, A. G.		Destruction test of an electrically welded superheater drum.....	17	Tests.....	921
Economic considerations in the application of modern steam turbines to power generation.....	673, 757	Coxe, Eckley Brinton		Dredge, James	
Chromium-Aluminum Steel		Biography.....	280	Biography.....	294
See Alloy Steels		Cranes		Dredge Pumps	
Chromium-Nickel		Design trend.....	36	See Pumps	
See Alloy Steels		Special lubricating problems.....	1059	Dredges	
Chromium-Tungsten Steel		Crude Oil		Pump sand and gravel dredge.....	992
See Alloy Steels		See Oil		Drums, Boiler	
"Civil Engineering"		Cruisers		See Boilers	
New monthly magazine (Ed).....	1007	See Naval Vessels		Durand, William Frederick	
Clark, Daniel Kinnear		Cupolas		Biography.....	288
Biography.....	290	Oxygen-enriched air for cupola blowing..	537	Hydraulic theory.....	367
Clark, Wallace		Poumey type.....	920	Dweishauvers-Dery, Victor	
American management in Europe.....	1051	Current Mechanical Engineering Literature		Biography.....	294
Clarkson, Coker F.		Engineering Index items.....	95, 173, 251, 577, 657, 735, 813, 877, 945, 1031, 1117	Dyes	
Died June 4 (Ed).....	724	Cutting Tools		For textiles.....	443
Claude, Georges		Lathe, ranges of cutting angles for.....	542	E	
Power from the tropical seas.....	1039	Metal hard-facing.....	222		
Clausius, Rudolph Julius Emmanuel		Perdurin (alloy steel).....	224	Economics	
Biography.....	290	Tungsten carbide, grinding.....	684,	Changes in 1929.....	105
Coal		Tungsten carbide, instructions for use of.....	683	Edison, Thomas Alva	
See also Pulverized Fuel		Dams		Biography.....	297
Carbonization of.....	337	Construction, development in.....	400	Editorial	
Consumed by electric public-utility power plants in 1928.....	983	Construction, new methods of.....	21	See pp. 84, 164, 240, 568, 638, 722, 802, 868, 934, 1006, 1106	
Grinding tests with a simple tube mill.....	987	Dana, Samuel T.		Edmonds, G. S.	
Ignition temperature for coal and semi-coke.....	154	Training men for the wood-using industries.....	896	Troubles with high boiler pressures.....	83
Production of bituminous, 1918-1929.....	14	Daugherty, R. L.		Education	
Coal Industry		Pumping machinery.....	381	Air pilots—see Aeronautical Education	
Harold V. Coes paper on (Ed).....	1106	Davis, Edward F. C.		American engineering colleges, characteristics of.....	503
Coes, Harold V.		Biography.....	281	Commencement (Ed).....	722
Materials handling.....	435	Dawes Plan of International Settlement		Engineering education—a layman's view.....	1
Coke Ovens		Comparison with Young plan.....	743	Engineering, broadening effects demonstrated by statistics (C).....	1102
Improvements.....	338	DeConingh, E. H.		Engineering colleges, research at.....	504
Cold Storage		Conveyors in paper mills (CT).....	867	Engineering colleges, responsibilities and opportunities of.....	505
See Refrigeration		De Ferranti, Sebastian Z.		Engineering-drawing summer school (Ed).....	871
Colleges		Obituary.....	246	Engineering education in the U. S. A., development of.....	503
See Education		De Freminville, Charles		Engineering faculties.....	2
Collins, F. W.		Biography.....	300	Engineering, report on (BR).....	940
Conveying sand hydraulically (CT).....	1004	De Laval, Carl Gustaf Patrik		Engineering training.....	747
Combustion		Biography.....	298	Interdependence of industry, the engineering profession, and engineering education.....	503
Radiation and the Planck quantum theory.....	852, 915, 981, 1075	Deutsch, Z. G., Larsen, A. M., and Young, H. F.		Lehigh, industry and education at (Ed).....	1108
Compressors, Air		Design of steam piping to care for expansion (C).....	1104	Observations on 38th annual meeting of S.P.E.E.....	806
See Air Compressors		Die Castings		Technical, value of.....	503
Concrete Breakers		Zinc-base.....	223	Wood-using industries, training men for.....	896
Gasoline-driven type.....	159	Dies		Eiffel, Alexander Gustave	
Condensers		British die-tool treatments.....	70	Biography.....	295
See Steam Condensers		Diesel Engines		Einstein, S.	
Condit, K. H.		Advance.....	18	Machine-tool milestones, past and future.....	959
Progress in machine-shop practice.....	26	Beardmore Diesel-electric locomotive tests on.....	68	Elasticity	
Conference Table				Elastic stability.....	495
See pp. 83, 162, 238, 566, 635, 720, 1004				Favre method of determining elastic stresses.....	550
Conrad, W. L.				Theory of.....	494
Progress in industrial management.....	28			Electric Brakes	
Conveyors				Magnetic track brakes.....	715
See also Materials Handling					
In paper mills (CT).....	7, 86				

Electric Circuit Breakers	
Quenched-arc circuit-breaker switch.....	620
Electric Equipment	
Low-voltage hazard.....	1105
Electric Generators	
New York Edison Company's 160,000-kw. generator.....	225
Electric Generators	
Turbine generators, developments in.....	928
Ventilating system of the 160,000-kw. single-shaft generator, New York Edison Company.....	226
Electric Heating	
See also Heating, Heating and Ventilation Heat storage with oil.....	629
Electric Motors	
Design and application of, modern trends in.....	201
"Kosfi-Leading" compensation induction type.....	1083
New three-phase commutator type.....	222
Electric Trucks	
See Industrial Trucks	
Electrometallurgy	
Electrodeposition of iron.....	537
Elevators	
Work of research committee on.....	200
Embrittlement	
See Boiler Plates, Embrittlement	
Emley, Warren E.	
Products from fibrous and granular wood.....	953
Emmet, William Leroy	
A.S.M.E. medalist.....	523
Employees	
Decentralized training.....	963
Employment	
Hours of labor.....	454
Short-period guarantee (Ed).....	1106
Stabilization of.....	610
Emulsions	
Removal of oil and grease from metal parts with.....	993
Energy	
Radiation, distribution as judged from end states of reaction.....	553
Undeveloped sources (Ed).....	1003
Engineering	
See also Mechanical Engineering	
Hydroelectric.....	399
Leadership.....	766
Mechanical, prospects in.....	3
Science and, relationship between.....	595
Should the manufacturer or the user pay the cost?.....	615
Engineering Economy	
Principles of (BR).....	1014
Engineering Education	
See Education	
Engineering Index	
Selected items from.....	95, 173
251, 577, 657, 735, 813, 877, 945, 1031, 1117	
Revised classifications (Ed).....	164
Engineering Mechanics	
See Mechanics	
Engineering Standards	
See Standardization	
Engineers	
Common intellectual interests of (Ed)....	1006
Dependence of the modern community on.....	103
Economic status in the federal service.....	567
Growing obligations of (Ed).....	802
Improvement of the social and economic status of (C).....	633
Registration laws of the United States.....	215
Relation to petroleum industry.....	426
Relation to purchasing of materials (Ed).....	84
Social and economic status, improvement of.....	634
Status of the mechanical engineer in the machinery industries.....	219
Things done right (Ed).....	722
Why none on advisory board of Princeton School of Public and International affairs (Ed).....	569
Work and influence of.....	827
Engines	
See Airplane Engines; Diesel Engines; Gas Engines; Gasoline Engines; Oil Engines; Steam Engines	
Ennis, William D.	
Principles of engineering economy (BR).....	1014
Etching	
Numbers on thickness gages (CT).....	1005
Exhibits	
Move to discourage liquor at.....	73
Exploration	
Arctic discoveries (Ed).....	1006
Extensometers	
Concentrated stress measurement.....	611
F	
Fabrics	
See Textiles	
Factories	
See Industrial Plants	
Factors of Safety	
See Safety Factors	
Fans	
Leach-Woods propeller fan for inflammable gases.....	152
Feedwater	
Conditioning.....	106
Heating for locomotives.....	463
Reheating and regenerative heating.....	677
Feedwater Heaters	
Use with steam-powered drilling equipment.....	1084
Feedwater Treatment	
Leaky seams and rivets in boilers following use of water softeners (CT).....	162
Ferris, John Price	
Who should pay the engineer?.....	615
Field, Crosby	
Management of the small manufacturing plants: its characteristics and advantages.....	901
Flock, E. F., Osborne, N. S., and Stimson, H. F.	
Report on progress in steam research at the Bureau of Standards, with determinations of heat content and latent heat up to 270 deg. cent.....	127
Fire	
Economic loss from.....	631
Fire-Alarm Systems	
In metal mines.....	1105
Fire Prevention	
Making farm buildings safe.....	632
Fits	
Standard, international unification of.....	905
Flanders, Ralph E.	
The work and influence of the engineer.....	827
Flockton, Arthur H.	
Etching numbers on thickness gages (CT).....	1005
Flow of Air	
See Aerodynamics; Flow of Fluids; Flow of Gases	
Flow of Fluids	
See also Aerodynamics	
Hydraulic characteristics of flow of water around bends.....	988
Measurement of.....	372
Pipe-friction losses.....	969
Flow of Gases	
See also Flow of Fluids	
Velocities exceeding the velocity of sound.....	497
Flow of Liquids	
See Flow of Fluids	
Flow of Oil	
See Flow of Fluids	
Flow of Water	
See Flow of Fluids	
Fluid Meters	
See Measuring Instruments	
Fluids	
Flow of, see Flow of Fluids	
High- and low-viscosity.....	497
Mechanics of fluid bodies.....	496
Flying	
See Aerial Transportation; Aeronautics	
Flywheels	
Energy of rotation and revolution (CT).....	720
Foch, Ferdinand	
Biography.....	302
Foresman, J. W.	
Standard cost (BR).....	1014
Forge-Shop Practice	
Old-time forging methods.....	406
Forging Machines	
Hollow rolling mill.....	158
Forgings	
Locomotive elements entering into.....	153
Locomotive, higher quality for.....	542
Methods and apparatus employed by John Brown & Co., Ltd., Sheffield.....	158
Foundry Practice	
See also Cupolas	
Casting railway bronze bearings in permanent molds.....	788
Centrifugally cast alloy-steel guns.....	855
Manufacture of guns by centrifugal casting.....	796
Fourier, Jean Baptiste Joseph	
Centenary.....	672
Fox, Charles Douglas	
Biography.....	297
Freeman, John Ripley	
Biography.....	283
Freight Cars	
See Cars, Freight	
Freight Handling	
See Materials Handling	
Freight Transportation	
See Aerial Transportation; Railroad Transportation	
Fritz, John	
Biography.....	281
Fuel Oil	
See Oil Fuel	
Fuels	
See also Coal; Combustion; Natural Gas; Pulverized Fuel	
Fuel Utilization in 1929, Progress in.....	13
Improved uses.....	417
Low-temperature carbonization, German Tormin process of.....	224
Problems discussed at American Chemical Society meeting.....	987
Research.....	19
Utilization.....	334
Utilization, progress in.....	13
Fullarton, G. M.	
Wage-incentive methods (BR).....	643
Furnaces	
See Boiler Furnaces	
Fusion Welding	
See Welding	
G	
Gages	
Conference of manufacturers and users of.....	632
Fine measurements (BR).....	645
Thickness, etching numbers on.....	1105
Gaillard, John	
International unification of standard fits.....	905
Garner, E. F.	
Machine design (BR).....	643
Gas	
See Natural Gas	
Gas Engines	
Development in 50 years.....	347
Progress in.....	40
Single-cylinder type, increasing speed of.....	540
Gas Pipe Lines	
See Pipe Lines	
Gas-Power Engineering	
Progress in.....	38
Gas Turbines	
Lorenzen type and supercharger for gasoline and Diesel engines.....	665
Problems (Ed).....	724
Gasoline Engines	
See also Internal Combustion Engines	
Comparison with Diesel engines.....	789
Scientific research in the United States on.....	858
Gears	
Grinding, developments in.....	627
Load and stress cycles in gear teeth (C).....	163
Reo composite herringbone gears.....	224
Generators, Electric	
See Electric Generators	
Giacomelli, R.	
The aerodynamics of Leonardo da Vinci.....	888
Gibson, F. M.	
Progress in steam-power engineering.....	47
Gibson, Norman R.	
Gibson method for field testing of hydraulic turbines.....	374
Giese, Henry	
The application of engineering to the agricultural industry.....	956
Gilbreth, Lillian M.	
Robots or men? (BR).....	941
Gillett, H. W.	
The aluminum industry (BR).....	872
Glass	
Articles, forming by centrifugal force.....	70
Giders	
Popularity of (Ed).....	640
Gliding	
Beneficial in training of airplane pilots.....	536
Early experiments in.....	485
Goethals, George Washington	
Biography.....	300
Goss, William Freeman Myrick	
Biography.....	285

Governors	
See Hydraulic Turbines, Governors; Steam Engines, Governors; Steam Turbines, Governors	
Grashof, Franz	
Biography.....	293
Greene, A. M., Jr.	
Steam piston pumps.....	378
Griffin, Robert Stanislaus	
Biography.....	301
Marine engineering.....	480
Griffith, Leigh M.	
Crankless reciprocating machines (C)....	1104
Grinding	
Abrasive roll for.....	858
Grinding Wheels	
New code for.....	910
Group Bonus Systems	
See Wage Payment Plans	
Guggenheim, Daniel	
Obituary (Ed).....	1009
Gunther, Charles O.	
Markings on bullets and shells fired from small arms.....	17, 107
Gyroscopes	
Application of principle of.....	493
 H	
Hallauer, Otto	
Biography.....	291
Hardness Testing	
Materials.....	501
Harrington, John Lyle	
Biography.....	288
Hartness, James	
Biography.....	286
Harza, Leroy F.	
Hydroelectric engineering.....	399
Haswell, Charles Haynes	
Biography.....	298
Heat	
Conduction, theory of.....	864
Latest heat of evaporation of water.....	124
Mean-temperature-difference chart.....	995
Mechanical equivalent of, passing of.....	139
Symbols, standardization of.....	554
Heat Convection	
See Heat Transmission; Thermodynamics	
Heat Engines	
German treatise on (BR).....	731
Heat Transfer	
See Heat Transmission	
Heating Furnaces	
See Furnaces, Heating	
Heat Storage	
Electric oil system.....	629
Heat Transmission	
Between fluids and solids.....	690
Condensation of steam in a vertical pipe.....	231
Flash heat exchanger.....	545
Heat loss depending on the average tube-wall temperature and velocity of steam flow.....	232
Heat transfer in water pipes.....	547
Industrial heat transfer (BR).....	732
Radiant heat transmission.....	699
Radiation between solids, factors for use in equation for.....	700
Through insulation.....	693
Heat Unit	
International standard.....	132
Joule, increasing use of as basic laboratory unit of heat.....	139
Heating	
See also Electric Heating, Heating and Ventilation	
Electric steam heating for buildings.....	621
Heating and Ventilation	
See also Heating	
Domestic heating, developments in.....	18
Heck, Robert C. H.	
Notes on formulation (steam equations).....	133
Heilman, R. H.	
Transmission of heat through insulation.....	693
Heitzel, W. G.	
Progress in the petroleum industry.....	41
Helical Gears	
See Gears	
Herbert, Edward G.	
Nitrided steel: measuring the hardness and thickness of the case.....	597
Hydraulics	
Design developments.....	789
Fifty years' progress in.....	366
Hydraulic power transmission, characteristics of the nine basic systems of.....	790
Model testing.....	20
Progress in.....	19
Theory of.....	367
Theory of, advance in.....	370
Hydrodynamics	
Fifty years of.....	498
I	
Laminar and turbulent flow of water in pipes	
.....	496
Hydroelectric Power Plants	
Factors affecting the economics of.....	19
Governmentally owned.....	20
Large jet dispersers at Arapuni.....	539
I-Beams	
Heavy, bending.....	566
Ice Plants	
See also Industrial Plants; Refrigeration	
First large ice plants.....	355
Ice Industry	
See also Industries; Refrigeration	
Increase of refrigeration and population, 1904-1928 and probable increase of both to 1934.....	354
Induction Motors	
See Electric Motors	
Industrial Accidents	
Analysis in Manville factory.....	1049
Management's responsibility for.....	1048
Industrial and Engineering Chemistry	
Cooperation gratefully acknowledged (Ed).....	568
Industrial Education	
See Education	
Industrial Management	
See also Production Control; Wage-Payment Plans	
Accident prevention, duty in.....	631
European industry, characteristics of management.....	1051
Fifty years of progress.....	447
Foreman-manager plan at Armco.....	543
Fundamentals of (C).....	239
Human energy, directing and using.....	118
Industrial workers, efficiency of (CT).....	566
Methods in the Richman Bros. Co., Cleveland, Ohio.....	708
Progress in.....	28
Scientific management in American industry (BR).....	168
Shop management (Ed).....	638
Small plant characteristics and advantages.....	638
The 1922 ten-year progress report.....	901
Uneconomical minimum-cost production.....	452
Work routing in production (BR).....	899
731	
Industrial Plants	
See also Power Plants	
Economic steam pressures and temperatures in.....	765
Robots or Men? (BR).....	941
Industrial Relations	
Progress in manufacturing industry.....	401
Industrial Trucks	
See also Materials Handling	
New types.....	33
Industries	
Preparedness for war.....	206
Rapid changes in (Ed).....	868
Instalment Selling	
Widened demand for manufactured goods.....	73
Instruments	
See also Measuring Instruments	
For measuring heat of combustion.....	1093
For smoke-density determinations.....	999
Internal-Combustion Engines	
See also Airplane Engines; Diesel Engines; Gas Engines; Oil Engines	
Centrifugally cast cast-iron engine cylinder liners.....	921
Three-cylinder two-stroke-cycle engine for British car.....	859
Two-stroke engine, new type of.....	988
International Standards Association	
Conferences in Paris.....	932
Iron	
Electrodeposition of.....	537
"Iron Age"	
Editorial board changes (Ed).....	638
Iron Alloys	
Research organized (Ed).....	570
Iron and Steel	
See Iron; Steel	
Iron and Steel Industry	
Progress in 1929.....	23
Progress since 1880.....	415
Iron and Steel Plants	
See Blooming Mills; Rolling Mills	
Isherwood, Benjamin Franklin	
Biography.....	296

J

- Jacks**
Anchor puller type..... 626
Jacobus, David Schenck
Biography..... 286
Jasper, T. McLean
Building vessels for high-pressure and high-temperature service..... 193
Jeter, Sherwood F.
Obituary..... 166
Jigs and Fixtures
Gage making becomes a profession..... 413
Johnson, Willard C.
Modern trends in the design and application of electric motors..... 201
Jones, Bradley
The navigation of aircraft (BR)..... 647
Journal Bearings
See Bearings, Journal
Jupp, Alfred J.
Engineering and industrial standardization..... 552

K

- Kamo, Masawo**
Biography..... 304
Karr, Richard D.
Bending a heavy I-Beam (CT)..... 566
Keenan, J. H.
Comparisons (steam tables)..... 130
Ketchen, W. L. COs for manufacture of refrigerant (CT)..... 83
Keyes, F. G., and Smith, L. B.
Report on progress in steam research at the Massachusetts Institute of Technology..... 123
Vapor pressure of water from the ice point to the critical temperature..... 124
Kimball, A. L. Energy of rotation and revolution in flywheels (CT)..... 720
Rigid dynamics and vibrations..... 493
Kimball, Dexter Simpson
Biography..... 288
Kirsch, J. L.
Rusting of tin plate in storage (CT)..... 163
Klemin, Alexander
Aeronautics..... 485
The N.A.C.A. conference at Langley Field..... 767
Knitting
See Textiles, Knitting
Knives
See Woodworking Machinery, Knives

L

- Laboratories**
Engineering, Lehigh University..... 883
Labor-Saving Devices
See also Materials Handling
Rapid development of..... 417
Langill, R.
Scandinavian gang saws for closer utilization of timber (C)..... 1001
Lanphier, Major T. G.
The future of air transportation..... 596
Larkin, F. V., and Seyfert, S. S.
A new engineering laboratory..... 883
Larsen, A. M., Young, H. F., and Deutsch, Z. G.
Design of steam piping to care for expansion (C)..... 1104
Lathes
See also Machine Tools
Evolution of..... 411
Tunet, British combination..... 922
Léauté, Henri
Biography..... 296
Leavitt, Erasmus Darwin
Biography..... 278
Le Chatelier, Henri
Biography..... 303
Le Conte, Joseph N.
Advance in the theory of hydraulics..... 370
Ledell, W. A.
Conveying sand hydraulically (CT)..... 1004

- Lessells, John M.**
Mechanics of materials..... 500
Lewis, Wilfred
Obituary..... 166
Lift Trucks
See Industrial Trucks; Materials Handling
Liquid Fuels
See Fuels
Liquids
Viscosity determination..... 233
Lithography
See Printing Industry
Loaders
See Conveyors; Materials Handling
Locomotives
Articulated type..... 465
Beardmore Diesel-electric type..... 68
Boilers and auxiliaries..... 461
Burmeister-Wain Diesel-electric..... 862
Compounding..... 465
Counterbalancing freight type (CT)..... 635
Dimensions and proportions, trend in..... 460
Efficient control, aids to..... 466
Forgings, elements entering into..... 153
Future trends..... 479
High boiler pressures, troubles with (CT)..... 83
High-pressure section..... 464
High-pressure types..... 57
Holmes locomotive poppet-valve gear..... 1085
Innovations of 1900..... 458
Internal-combustion types..... 469
Limited-cut-off..... 466
Modern types..... 460
Nicholson thermic siphon..... 464
Outside valve motions..... 466
Power-operated devices..... 468
Pulverized-coal firing on..... 18
Standardization effects economies..... 997
Tenders..... 468
Traction-increasing devices..... 467
Turbine and steam reciprocating engines..... 714
Typical locomotive of 1880..... 458
Typical locomotive of 1918..... 459
Wiesinger high-pressure type (C)..... 633
Wyss-Krupp turbine type..... 863
Loeffler, St.
Problems involved in operation with super-pressure steam..... 601
Lorenzen, Christian
The Lorenzen gas turbine and super-charger for gasoline and Diesel engines..... 665
Loring, Charles Harding
Biography..... 280
Low, Frederick Rollins
Biography..... 288
Editor Emeritus of "Power" (Ed)..... 165
Power..... 319
Lubricating Oil
Viscosity effect and test methods..... 541
Lubrication
Crane..... 1059
Fluid-film, progress of..... 114
Research in..... 772
Lumber
Production from cornstalks..... 849
Lumber Industry
See Timber
Lynn, A. M.
Production of plastic molded telephone parts..... 889
Lytle, Charles W.
Group incentives (BR)..... 808
Industrial management..... 447
- M**
- Machine Design**
Application of mechanics to, recent developments in..... 607
Book review (BR)..... 643
Machine-Shop Practice
Progress in..... 26
Machine Shops
Old-fashioned type..... 407
Machine Tools
Advent of..... 312
Curve of development..... 411
Developments in German design..... 623
Effect of obsolete machines on readjustments of the machine age..... 617
Heavy-duty thread-milling machine..... 225
Hydraulic operation of..... 708
KOS abrasive roll..... 858
Milling machines, importance of..... 412
Past and future..... 959
Up-to-date types of 1880..... 410
- Machinery**
Balancing rotating parts..... 493
Cold-heading machine for rivets, screw blanks, etc..... 230
Machine age..... 311
Obsolescence..... 2
Rotating, critical speeds of..... 607
Mackay, Leonard R.
Treating wood for use in lining refrigerator cooling rooms (CT)..... 566
Magdeburger, E. C.
Progress in oil- and gas-power engineering..... 38
Magnesium
Alloys of..... 976
Industrial history of..... 958
Main, Charles Thomas
Biography..... 287
Mallet, Anatole
Biography..... 299
Management
See Industrial Management
Manganese Steel
See Alloy Steels
Mangelsdorf, T. A.
Progress in fuel utilization in 1929..... 13
Manning, Charles H.
Biography..... 299
Manufacturing Plants
See also Industrial Plants
Value of products per worker from 1880 to 1930..... 345
Marble, Edwin H.
Textile industry..... 440
Marine Engineering
Developments that contributed to economy..... 481
Early stages of naval development..... 480
Marine Engines
Development of the triple-expansion as a substitute for the compound engine..... 480
Heat flow to liners, heads, and pistons..... 706
Marks, Lionel S.
Ira Nelson Hollis at Harvard University (C)..... 1103
Mass Production
See Production Control
Materials
Enormously strong, possibilities in production of..... 849
Hardness testing..... 501
High-temperature testing..... 501
Increased use when cheap (Ed)..... 1007
Mechanics of..... 500
Mechanics of plastic state of matter..... 502
Mechanics of, statistical element in..... 839
Strengths, development of theory of..... 502
Materials Handling
See also Conveyors; Cranes; Industrial Trucks
Outstanding developments..... 435
Progress in..... 32
Mathematics
Solving practical problems (Ed)..... 240
Matter
Transmutation of..... 780
McAdam, D. J., Jr.
Boiler-metal embrittlement (C)..... 82
McAdams, W. H.
Heat transmission between fluids and solids: conduction and convection..... 690
McCausland, J. R.
The use of wire rope by steam-electric generating plants..... 529
McConnell, R. S.
Progress in railroad engineering..... 57
Mead, Daniel W.
Development of the deep-well turbine pump (C)..... 567
Measuring Instruments
See also Gages
Extensometer for the measurement of concentrated stresses..... 611
Favre's optical method for the photoelasticimetric determination of elastic stresses..... 550
Fluid-metering practice..... 968
Torque meter for aircraft engines in flight..... 989
Mechanical Engineering
See also Engineering
Fifty years ago..... 315
Mechanics
Engineering (BR)..... 644
Quantum, leading developments (BR)..... 1112
Mechanisms
Ingenious types for designers and inventors (BR)..... 1015
Mechanization
Mechanized civilization..... 830
Retrogression in (Ed)..... 1106

Meier, Edward Daniel	
Biography.....	285
Mellon Institute of Industrial Research	
Recent activities.....	600
Melville, George Wallace	
Biography.....	282
Mercury-Vapor Process	
Installation in Meadows station of Hartford Electric Light Co.....	234
Metals	
See also Non-Ferrous Metals	
Metals	
Fatigue and overstress, correlation of.....	159
Oil and grease removal from.....	993
Static properties, determination of.....	500
Metal-Working Plants	
See also Industrial Plants	
Mechanized industries, rise of.....	404
Metallurgy	
Development of science of.....	416
Michell, A. G. M.	
Progress of fluid-film lubrication.....	114
Miller, Fred J.	
Biography.....	287
Gantt medalist.....	523
Miller, H. E.	
Ingenious mechanisms for designers and inventors (BR).....	1015
Moldenke, Richard	
High-test cast iron.....	593
Molloy, E.	
Airplane mechanics rigging handbook (BR).....	645
Monroe, Wm. S.	
The A.S.M.E., and standardization under the A.S.A.....	209
Moody, L. F.	
Progress in hydraulics.....	19
Moody, Lewis F., and Van Leer, Blake, R.	
Fifty years' progress in hydraulics.....	366
Moody, Wm. M.	
Industrial preparedness.....	206
Moore, H. F.	
Strength of materials (BR).....	1112
Morgan, Charles Hill	
Biography.....	282
Morrison, L. H.	
Oil- and gas-engine development.....	347
Morton, R. B.	
Economics of railway electrification.....	821
Motor Cars	
See Automobiles	
Motor Trucks	
Kerr, Stuart and Co. Diesel-engine truck.....	544
Scammell 100-ton transporter.....	624
Motors, Electric	
See Electric Motors	
Mueller, E. F.	
The passing of the mechanical equivalent of heat.....	139
Museums	
Museums inspire youth (Ed).....	868
N	
Nadai, A., Baud, R. V., and Wahl, A. M.	
Stress distribution and plastic flow in an elastic plate with a circular hole.....	187
Nansen, Dr. Fridjof	
Nansen the engineer (Ed).....	640
Naphtha	
See also Petroleum Products	
Steam stills for distillation.....	426
National Defense	
Advance along engineering lines.....	507
Defense against gas.....	860
National Metal Exposition	
Metal week in Chicago.....	1013
Natural Gas	
Increase in utilization of.....	14
Naval Vessels	
Armament tests (Ed).....	1107
Diesel power for.....	484
Electric drive for.....	483
Introduction of turbine drive in.....	482
Oil fuel and superheated steam, first use of.....	483
Needs, S. J.	
Progress of fluid-film lubrication (D).....	118
Newcomb, Charles Leonard	
Obituary.....	642
Nickel	
Refining process.....	156
Nickel-Molybdenum Steel	
See Alloy Steels	
Nickel Steel	
See also Alloys; Alloy Steels; Steel Treatment for dies.....	70
Nitridation	
Measuring the hardness and thickness of case.....	597
Noise Reduction	
Engineers should assist in (Ed).....	869
Non-Ferrous Metals	
Physical properties of.....	980
O	
Obsolescence	
See Machinery—Obsolescence.....	2
Oil	
Firing of boiler furnaces with oil.....	336
Use for fuel of naval vessels.....	483
Oil and Gas Power	
Progress in.....	38
Oil Coolers	
Calculation of oil temperatures.....	1089
Oil-Electric Locomotives	
See Locomotives	
Oil Engines	
See also Diesel Engines	
Bibliography.....	41
Developments in.....	39
Development in 50 years.....	347
Early ventures.....	349
Economy of operation with heavy fuel.....	859
Hesselman type for motor vehicles.....	1082
High-powered, for land purposes.....	706
Low-compression.....	352
Oil Fields	
Colombia development.....	795
Peru, operation in.....	795
Oil Fuel	
Burner design, improvements in.....	18
Oil-Pipe Lines	
See Pipe Lines	
Oil Pumps	
See Pumps	
Oil Refining	
See Petroleum, Refining	
Oil Separators	
Method used at Oklahoma City.....	990
Oil Wells	
New principle in pumping.....	712
Ordnance	
Carden Loyd baby tank.....	794
Guns cast centrifugally.....	856
Orifices	
See Flow of Fluids	
Ormondroyd, J.	
Applied mechanics (BR).....	1113
Orrok, Geo. A.	
Carbonization of coal.....	337
Central stations.....	324
Economics of high-pressure steam.....	748
Fuel utilization.....	334
Osborn, Robert E.	
Future aircraft-design trends.....	971
Osborne, N. S., Stimson, H. F., and Flock, E. F.	
Report on progress in steam research at the Bureau of Standards, with determinations of heat content and latent heat up to 270 deg. cent.....	127
Oscillographs, Cathode	
Norinder cathode-ray oscillograph.....	225
Ovington, Earle	
Flying from the private-owner's standpoint.....	974
Oxholm, Axel H.	
Scandinavian gang saws for closer utilization of timber (C).....	1003
P	
Paints	
Metallic, decreasing heat losses by use of.....	695
Parker, McRea	
Progress in textile manufacturing.....	59
Parsons, Charles Algernon	
Biography.....	301
Passenger Transportation	
See Aerial Transportation; Railroad Transportation	
Peck, C. B.	
Railway transportation.....	457
Pegram, George B.	
Hydrodynamics.....	498
Perdurum	
See Cutting Tools	
Perrone, Pio	
Biography.....	301
Perry, Thomas D.	
Fifth annual wood industries meeting (Ed).....	1111
The wood industries.....	429
Peterson, R. E.	
Load and stress cycles in gear teeth (C).....	163
Petroleum	
Origin of.....	421
"Petroleum Mechanical Engineering" (Ed).....	1111
Production.....	422
Refining.....	424
Research.....	426
Transportation of.....	423
Petroleum Industry	
Progress in.....	41
Progress made in the last fifty years.....	421
Relation of engineers to.....	426
Petroleum Pipe Lines	
Location of main trunk pipe lines in the United States.....	423
Petroleum Products	
Statistics.....	427
Petroleum Refining	
Progress in.....	45
Pfau, Arnold	
Clemens Herschel's invention of the fall increaser (C).....	801
Improvement of the social and economic status of the engineer (C).....	634
Photoelectric Cells	
New uses (Ed).....	569
Types of.....	715
Piez, Charles	
"What Is Not Yet, May Be".....	259
Pillow Blocks	
Link-Belt Timken ball and socket type.....	792
Pilots	
Aircraft, training—see Aeronautical Education	
Pipe	
See also Flow of Fluids; Pipe Lines	
Concrete-pipe manufacture.....	919
Pipe bends, high-pressure, tests on.....	545
Tetralin process for cleaning gas pipes.....	993
Pipe Lines	
See also Steam Pipe Lines	
Corrosion of.....	44
Fluid flow and friction in.....	924
Progress in.....	41
Water-hammer theory and its applications.....	376
Piping, Steam	
See Steam Pipe Lines	
Plate Glass	
See Glass	
Plates	
Stress distribution and plastic flow in an elastic plate with a circular hole.....	187
Plywood	
Developments.....	432
Hydraulic presses for the manufacture of.....	626
Research Institute and Consulting Bureau in Berlin.....	630
Porter, Charles Talbot	
Biography.....	295
Potter, A. A.	
Engineering education.....	503
Powdered Coal	
See Pulverized Fuel	
Powell, Sheppard T.	
General trend of developments in feed-water treatment.....	106
Power	
See also Hydroelectric Power Plants; Power Plants; Steam Power	
Developments in half-century.....	319
Fifty years of.....	321
From the tropical seas.....	1039
Horsepower capacity of power facilities used in manufacturing.....	344
Industrial developments in 50 years.....	340
Per worker in manufacturing industries.....	345
Power Generation	
Adequate supply, steps taken to insure.....	831
Alternative methods of.....	228
Power Houses	
See Power Plants	
Power Plants	
See also Hydroelectric Power Plants	
Altitude, effect on power.....	796
Central-station costs.....	330

Central-station development in 50 years.	324	Q
Claude's tropical-seas plant (Ed.)	1109	
Cotton mill, Victoria Mills, West Leigh, Lancashire	65	Quantum Theory
Deepwater, Penns Grove, N. J.	65	Planck, combustion radiation and the
Delaware River central station at Hol-	625	..... 852, 915, 981, 1075
land, N. J.	922	Quereau, John F.
Diesel plants, engine foundations for	332	Development of a method of measuring
East River station, New York Edison Company	329	concentrated stresses
Fisk Street station, Commonwealth Edison Company, Chicago, Ill.	360	..... 611
Hand-firing practice in a boiler room fifty years ago	327	Quick, Ray S.
Harrison Street station, Chicago, 1894	330	Development of water-hammer theory
Hell Gate station, United Electric Light and Power Company, New York	749	and its applications
High-pressure	991	..... 376
High-pressure-boiler-feed systems	1085	R
Municipal Diesel plant at Hudson, Mass.	990	Radio Beacons
Nearly manless boiler plant	990	Directive types installed
Ninety-sixth Street station, New York, 1898	328	..... 847
Operating data of	749	Radio Communication
Pearl Street power station, New York City, 1882	325	Symbols, standardization of
Representative central stations	333	..... 556
Sansom Street station, Philadelphia, 1889	326	Rail Cars
State Line station operated by the State Line Generating Company, Chicago, Ill.	331	Gasoline-engine driven
Steam-electric, complete, test code for	74	..... 474
Synthetic Ammonia and Nitrates, Ltd., at Billingham-on-Tees	862	Rail-motor-car service, development of
Trend in	750	..... 474
Power Test Codes	74	Railroad Electrification
Complete steam-electric power plants	74	Economics of
Instruments and Apparatus	1093	..... 821
Pt. 3—Temperature measurements: chap. 5, Pyrometric cones	797	Railroad Engineering
Pt. 9—Heat of combustion	636	Progress in
Pt. 11—Determination of quality of steam	233	..... 57
Pt. 17—Determination of the viscosity of liquids	999	Railroad Train Control
Pt. 20—Smoke density determinations	1093	Light-beam train control
Prentice, Donald B.	1102	..... 692
Broadening effects of engineering education demonstrated by statistics (C)	1093	Railroad Transportation
Presses, Hydraulic	626	Development of
Hydraulic plywood presses	891	..... 457
Manufacture of phenol-plastic parts	193	Plan to meet motor-bus competition (Ed)
Pressure Vessels	911	..... 639
See also Boilers		Railroads
High-pressure and high-temperature service		Electrification
Strength of welded bull plugs		..... 469
Printing Industries	419	George Bennie monorail-plane suspended type
Fifty years' progress	50	..... 862
Progress in		Merger plan of The Interstate Commerce Commission (Ed)
Production Control	401	..... 163
Achievements in	241	Trend in the development of railroad engineering
Meaning of mass production (Ed)	451	..... 478
Scientific planning		Rails
Propeller Turbines		Rail-head wear, measurement of
See Hydraulic Turbines		..... 863
Public Utilities		Rateau, Auguste C. E.
Governmental regulation and supervision of	20	Biography
Pulverized-Coal Burners		..... 301
Burner for fire-tube boiler on the steamer "Donau"	229	Obituary
Burner of the Kohlenstaub Co. for fire-tube boilers without ignition chambers	229	..... 571
Pulverized Coke	538	Raymond, F. E.
Use as a fuel		Uneconomical minimum-cost production
Pulverized Fuel	236	..... 899
Applications	1105	Rayon
Code approved	364	History of
Early attempts to use pulverized coal	16	..... 445
Increased use	920	Rays
Selecting fuels for pulverized-coal installations	154	Cosmic
Temperatures for rapid self-heating of powdered coal and the semi-coke made therefrom	385	..... 698
Pumps	567	X-rays, applications
Boiler-feed types	155	..... 1112
Development of the deep-well turbine type (C)	163	Rech, H. F.
Fuel type for airless-injection engines	378	Boiler-metal embrittlement (C)
Joseph's Well (C)		..... 82
Steam piston types		Reciprocating Engines
Pumps, Air-Lift		Crankless type
See Oil Wells, Pumping		..... 1104
Pumps Centrifugal		Reed, Edward J.
Development	366	Biography
Early types	382	..... 291
Extended use of	381	Refractory Materials
First centrifugal pump (C)	163	Manufacturing methods
Hydraulic design, elements essential in	383	..... 18
Purchasing		Refrigeration
Engineer's relation to the purchasing of materials and machinery (Ed)	84	See also Ice Industry
		Automatic refrigeration at Harvard University
		..... 69
		Carbo dry-ice process
		..... 1089
		CO ₂ for manufacture of refrigerant (CT)
		..... 83
		Cooling and heating with one unit
		..... 992
		Direct-expansion quick-freezing machine
		..... 1088
		Early developments
		..... 353
		Mechanical, for railroad cars, with axle drive
		..... 796
		Multi-feed, multi-suction evaporating system
		..... 69
		Oldham factor chart for calculation and comparison of power absorbed in vapor compression
		..... 548
		Organic fluorides as refrigerants
		..... 714
		Tendencies in modern design, outworn theories
		..... 547
		Superheated ammonia vapor, thermodynamic properties of
		..... 548
		Use in the arts
		..... 356
		Refrigerators
		Treating wood for use in lining refrigerator cooling rooms (CT)
		..... 566
		Research
		Dedication of the Packard laboratory (Ed)
		..... 1108
		In dull times (Ed)
		..... 1107
		Users' viewpoint
		..... 614
		Reuleaux, Franz
		Biography
		..... 292
		Reynolds, Edwin
		Biography
		..... 283
		Rice, Calvin W.
		Fifty Years of the A.S.M.E.
		..... 261
		Rivets
		Machine for cold-heading
		..... 230
		Robinson, C. Snelling
		Progress in the iron and steel industry in 1929
		..... 23
		Roe, Joseph W.
		Impressions of the World Engineering Congress
		..... 243
		Melville medalist
		..... 523
		The Machine Age
		..... 311
		Roller Bearings
		See Bearings, Roller
		Rolling Mills
		Inland Steel Company's new merchant mill
		..... 977
		Six-hour day in the sheet mills
		..... 722
		Rubber
		Linatex rubber
		..... 856
		Russia
		Good out of (Ed)
		..... 1008
		Rutherford, Sir Ernest
		Transmutation of matter
		..... 780
		Ryan, W. J.
		Leaky seams and rivets in boilers following use of water softeners (CT)
		..... 162
		S
		Sackett, R. L.
		Report of the investigation of engineering education, 1923-1929
		..... 940
		Safety Engineering
		See also Accident Prevention
		Industrial medicine
		..... 70
		Safety Factors
		How safe is a factor of safety?
		..... 984
		Sague, James Edward
		Obituary
		..... 726
		Salmon, F. W.
		Bending a heavy I-beam (CT)
		..... 720
		Samans, Walter
		The petroleum industry
		..... 421
		Sand
		Hydraulic, conveying of (CT)
		..... 1004
		Schneider, Henri Adolphe Eugene
		Biography
		..... 292
		Schools
		See Education
		Air Pilots—see Aeronautical Education
		Schwab, Charles M.
		Biography
		..... 289
		Science
		Popularization of (Ed)
		..... 164
		Scott, C. F.
		Receives Edison medal
		..... 242
		Seaplanes
		See Aerial Transportation; Airplanes
		See, Horace
		Biography
		..... 279
		Seely, Fred B.
		The statistical element in mechanics of materials
		..... 839
		Sellers, Coleman
		Biography
		..... 279
		Sellers, Coleman, 3rd
		The use of tungsten carbide as a cutting material on heavy machine tools
		..... 683
		Selling Short
		Use of (Ed)
		..... 1008
		Seyfert, S. S., and Larkin, F. V.
		A new engineering laboratory
		..... 883
		Shafts
		Critical speeds
		Torsion of shafts
		..... 495
		Sheet Steel
		See Steel Sheet
		Shibusawa, Ei-ichi
		Biography
		..... 303
		Ship Design
		Armor and the Washington cruiser
		..... 709
		Safety
		..... 865
		Ship Loading
		See Conveyors; Cranes; Industrial Trucks; Materials Handling
		Ship Propulsion
		Application of electric machinery to
		..... 792
		Electric
		..... 793
		Shipman, W. H.
		Design of steam piping to care for expansion (C)
		..... 1104
		Ships
		Motorship "Lafayette"
		..... 887

INDEX TO MECHANICAL ENGINEERING, VOL. 52

XI

Siemens, C. William	
Biography.....	292
Silk	
Commercial development.....	444
Simplification	
See Standardization	
Simplified Practice	
See Standardization	
Small Arms	
Bullet markings.....	107, 1065
Smith, E. D.	
Progress in materials handling.....	32
Smith, Ed. S., Jr.	
Fluid metering.....	372
Fluid metering in practice.....	968
Smith, Jesse Merrick	
Biography.....	
Smith, L. B., and Keyes, F. G.	
Report on progress in steam research at the Massachusetts Institute of Technology.....	
Vapor pressure of water from the ice point to the critical temperature.....	123
Smith, Oberlin	
Biography.....	
Smoke Abatement	
Claims for damage.....	895
In New Jersey (Ed).....	1108
Photographic recording of smoke.....	604
Skid Platforms, Skids	
See Materials Handling	
Sound	
Photography of (Ed).....	1006
Spark Plugs	
New Graham-Paige type.....	1083
Sparks, A. F.	
Early hydraulic-turbine installation at Niagara Falls (C).....	719
Spencer, Frank C.	
Tungsten-carbide cutting materials.....	777
Sperry, Elmer Ambrose	
Biography.....	
Died June 16, 1930 (Ed).....	722
Obituary.....	870
Progress and prospects in the field of mechanical engineering.....	3
Spindles	
See Machine Tools, Spindles; Woodworking Machinery, Spindles	
Standardization	
American standards listed.....	77
A.S.M.E. and A.S.A.....	209
Building-exits code.....	76
Development of German national fits.....	905
Electric-motor-frame dimensions.....	161
Federal specifications and American standards.....	553
Federal specifications and national defense (Ed).....	569
Influence in heat and power industry.....	210
Influence in the mechanical industries.....	209
Influence on machine design.....	211
Influence on quantity production.....	213
Iron and steel bars.....	717
Limit gaging.....	77
Mechanical standards advisory council, Meeting on steel pipe flanges and flanged fittings.....	552
Relation to management.....	717
Safety code for grandstands.....	30
Symbols for heat and thermodynamics.....	237
Transmission roller chains, sprockets, and cutters.....	554
Wrought-iron and wrought-steel pipe and tubing.....	237
Standardization, Engineering and Industrial	
See pp. 76, 161, 237, 552, 631, 717, 799, 866, 932, 997, 1105	
Standards	
Graphical symbols used in radio communication.....	556
New American.....	553, 631, 866, 998, 1105
Pressure and vacuum gage.....	866
Track bolts and nuts.....	718
25-lb. cast-iron pipe flanges and flanged fittings.....	800
Woodruff keys, key slots, and cutters.....	718
Starr, John E.	
Refrigeration.....	353
Steam	
Adiabatic of in $p-v$ coordinates.....	133
Calorimetric measurements at saturation limit.....	128
Critical relations between water and.....	160
Heat transfer in the condensation of saturated and superheated steam in a horizontal tube.....	231
High-pressure, economics of.....	748
Liquid line and behind it.....	135
Progress in research at the Bureau of Standards.....	127
Quality instruments and apparatus for	
determination of.....	636
Report on progress at the Massachusetts Institute of Technology.....	123
Thermal properties, report on.....	119
Vapor-pressure equations.....	124
Steam Condensers	
Cooling-water consumption in.....	926
Surface, performance of the several types of.....	66
Troubles, Analysis of.....	923
Steam Economizers	
Development.....	861
Steam Engines	
Anderson rotary piston.....	628
Chemicals remove oil from engine condensate.....	990
Crankless reciprocating machines (C).....	1104
Governor gear for a high-speed reciprocating steam engine.....	716
High-pressure steam engine with opposed pistons.....	993
Steam Pipe Lines	
See also Pipe Lines	
Design of, to care for expansion (C).....	1103
Steam Power	
Engineering progress.....	47
Steam Power Plants	
See Power Plants	
Steam Tables	
Agreement on.....	141
Berlin conference (Ed).....	936
Callendar's extended steam tables.....	71
Comparisons of new with old.....	130
Progress in.....	119
Skeleton steam-tables conference.....	120
Steam Turbines	
Acceptance tests, international rules and regulations for.....	1010
Auxiliary drives.....	761
Average American turbo-alternator efficiencies.....	750
Developed by the General Electric Company.....	157
Developments affecting economics of large-steam-turbine practice.....	929
Double-rotation type.....	156
Economic considerations in application to power generation.....	673
Fall increaser, Clemens Herschel's invention of (C).....	801
Governors, operating characteristics of.....	713
High efficiencies.....	795
Introduction in central stations.....	359
Steam pressures and temperatures.....	677
Turbo-generator units over 60,000 kw. in operation or under construction.....	674
Turbo set for 1000-deg. fahr. steam temperature.....	861
Steel	
See also Alloy Steels	
British steel through American eyes (Ed).....	935
Chemical specifications of.....	788
Die steels in British practice, characteristics of.....	70
Flame cutting harmful practices.....	628
Markets for.....	418
Musso process.....	712
Processes.....	415
Prospective geography of the steel industry (Ed).....	869
Sheets and strips for airplanes.....	781
Stress at elevated temperatures, permanence of dimensions under.....	1050
Steel Industry	
Research in (Ed).....	240
Steel Mills	
Hours of labor.....	418
Safety improvements.....	418
Steel, Sheet	
Practical information (BR).....	1112
Stetson, George A.	
Appointed editor of A.S.M.E. publications (Ed).....	84
Stevens, John A.	
Obituary.....	
Stimson, H. F., Flock, E. F., and Osborne, N. S.	
Report on progress in steam research at the Bureau of Standards, with determinations of heat content and latent heat up to 270 deg. cent.....	127
Stocks	
Values and prices (Ed).....	86
Stokers	
Development.....	335
Locomotives, application to.....	462
Roney overfeed stokers installed fifty years ago.....	360
Strachan, John E.	
Machining seamless forged steel drums for high-pressure work.....	751
Stresses	
Concentrated, method of measuring.....	611
Cyclic, influence on corrosion.....	619
Structures	
Vibration, natural frequencies of, calculation.....	607
Superheated Steam	
See also Steam	
Use in naval vessels.....	483
Superheaters	
Electrically welded drum, test of.....	1063
Locomotives, application to.....	462
Survey of Engineering Progress	
See pp. 63, 149, 222, 536, 618, 705, 787, 855, 919, 986, 1081	
Swain, P. W., and Blake, A. D.	
Fifty years of power.....	321
Swasey, Ambrose	
Biography.....	283
Sweeney, O. R., and Winfrey, Robley	
The production of synthetic lumber from cornstalks.....	849
Sweet, John Edson	
Biography.....	278
Swiss Locomotive and Machine Works	
The Wiesinger high-pressure locomotives (C).....	633
T	
Tanks	
See Boilers; Pressure Vessels	
Tanks, Military	
Carden Loyd baby tank.....	794
Taylor, Frederick Winslow	
Biography.....	284
Telephone Equipment	
Production of plastic molded parts.....	889
Teletypes	
Transmission of orders by.....	73
Tetraethyl Lead	
See Anti-Knock Compounds	
Textile Fibers	
New German flax fiber (Ed).....	803
Textile Industry	
Progress in.....	59
Progress report.....	440
Textile Machinery	
Development.....	440
Textile Plants	
Old and new types.....	446
Textiles	
Balloon cloth.....	781
Drying.....	443
Dyes for.....	443
Finishing.....	446
Knitting.....	444
Printing developments.....	445
Special processes.....	444
Weaving.....	442
Thermic Siphon	
Nicholson.....	464
Thermodynamics	
See also Steam; Water	
Ammonia refrigerating and steam power cycles, analogy between.....	551
Symbols, standardization of.....	554
Thompson, C. M.	
The application of tungsten carbide to circular saws.....	681
Thompson, Eustis H.	
Crane lubrication.....	1059
Thompson, O. C.	
The economic status of engineers in the federal service (C).....	567
Thread-Milling Machine	
Heavy-duty.....	225
Thurston, Robert Henry	
Biography.....	278
Mechanical engineering fifty years ago.....	315
Thyrite	
Compound insulating and conducting material.....	223
Tietjens, O.	
Mechanics of fluid bodies.....	496
Tilden, C. J.	
Engineering mechanics (BR).....	644
Timber	
See also Wood	
Hardwood resources.....	433
Scandinavian gang saws for closer utilization of (C).....	1001
Timoshenko, S.	
Recent developments in the application of mechanics to machine design.....	607
Theory of elasticity.....	494

Tin Plate
Practical Information on (Ed)..... 1112
Rusting in storage (CT)..... 162

Tools
See Cutting Tools; Gages; Jigs and Fixtures; Machine Tools; Measuring Instruments; Metal Cutting

Torque Meter
For aircraft engine-flight..... 989

Torsional Vibration

See Vibrations

Towne, Henry Robinson
Biography..... 279

Trade Schools

See Education

Traffic Control

Speeding up automobile traffic (Ed)..... 164

Train Control

See Railroad Train Control

Training Courses

See Education

Training Schools

See Education

Transportation

See also Aerial Transportation; Railroad Transportation

Fifty years of..... 455

Trees

See Timber

Tresca, Henri

Biography..... 292

Trucks, Industrial

See Industrial Trucks; Materials Handling

Tube Mills

See Rolling Mills

Tubes

Recent developments in the German iron and steel industry..... 208

Straightening machine with cross-roll drive through spiral gears..... 714

Tubes, Boiler

See Boiler Tubes

Tungsten Carbide

See also Alloy Steel

Application to circular saws..... 681

Progress report No. 2..... 777

Use as a cutting material on heavy machine tools..... 683

Tungsten Steel

See Alloy Steel

Turbines

See Gas Turbines, Hydraulic Turbines, Steam Turbines

U

Unemployment
Control of (Ed)..... 1007
Remedy for—An English view..... 774

Unemployables de luxe (Ed)..... 802

Unified Pressure Vessels

Fusion welding of, proposed specifications for..... 1096

Unterberger, M.

Bending a heavy I-beam (CT)..... 238

Unwin, William Cawthorne

Biography..... 296

V

Van Leer, Blake R., and Moody, Lewis F.
Fifty years' progress in hydraulics..... 366

Vauclain, Samuel Matthews

Biography..... 302

Ventilation

See Heating and Ventilation

Vibrations

Rotating machinery, calculations for use in design of..... 607

Shaft whipping..... 493

Turbine-disk-wheel vibration, prevention of..... 494

Viscosity

Liquids, determination for..... 233

Vivian, A. C.

Transverse tests on cast iron (C)..... 933

Von Miller, Oskar

Biography..... 299

Vowles, Hugh P.

Joseph's Well (C)..... 163

The engineer as ruler..... 103

W

Wage Incentives

See Wage-Payment Plans

Wage-Payment Plans

Group applications of incentive plans..... 29

Group incentives (BR)..... 808

Wage-incentive methods (BR)..... 643

Wages

Average per worker, 1880-1930..... 345

Wagner, C.

Etching numbers on thickness gages (CT)..... 1005

Wahl, A. M., Nadai, A., and Baud, R. V.

Stress distribution and plastic flow in an elastic plate with a circular hole..... 187

Walker, Francis A.

Biography..... 294

Wall, Wm. G.

Engineering problems of modern motor cars..... 1070

Walsh, James L.

National defense..... 507

Warner, Worcester Reed

Biography..... 281

Tetralin

For cleaning pipes..... 993

Warner & Swasey Company

Fiftieth anniversary..... 725

Waste Elimination

Effect on industry from a managerial standpoint..... 31

Periodic campaigns..... 453

Water

Critical relations between steam and..... 160

Latent heat of evaporation of water..... 124

Properties of, at saturation limit derived from calorimetric measurements..... 128

Substitutes for, in cooling (Ed)..... 85

Vapor pressure from ice point to critical temperature..... 124

Vapor-pressure equations..... 124

Water Cooling Towers

Methods used by petroleum industry..... 989

Water Measurement

See also Flow of Fluids

METHODS developed in the last fifty years..... 371

Salt-velocity method..... 375

Tendency among power companies..... 21

Venturi meter use..... 366

Water Pipe Lines

See Pipe Lines

Water Power

See Hydraulics; Hydroelectric Power Plants

Water Treatment

See Feedwater

Water Wheels

Demountable runners..... 388

Kaplan automatic adjustable-blade..... 621

Pelton wheel..... 386

Water Purification

See Feedwater Treatment; Water Treatment

Water Sterilization

See Feedwater Treatment, Water Treatment

Water Treatment

See also Feedwater Treatment

Catadyn method of water sterilization..... 626

Waters, E. O.

Progress of fluid-film lubrication (D)..... 117

Weaving

See Textiles Weaving

Webster, Hosea

Steam generators..... 359

Weir, William Douglas

Biography..... 302

Welding

Aircraft construction..... 784

Arc welding in industry..... 844

Extensive use of..... 417

Gas equipment, safety rules for..... 799

Power boilers, drums or shells of, specifications proposed for..... 235

Pressure vessels, test results on..... 198

Progress..... 1013

Wellman, Samuel T.

Biography..... 282

Wenk, Morris

Counterbalancing freight locomotives (CT)..... 635

Westinghouse, George

Biography..... 285

White, Wm. Braid

Progress in the wood industries..... 61

White, William Henry

Biography..... 297

White, William Monroe

American hydraulic turbines..... 390

Wind Structure

See Aerodynamics

Winfrey, Robley, and Sweeney, O. R.

The production of synthetic lumber from cornstalks..... 849

Winston, James

Bending a heavy I-beam (CT)..... 566

Wire

Bridge wire, cold-drawn, tests of..... 931

Copper wire bars, new process for manufacture of..... 923

Wire Rope

Research (Ed)..... 568

Use by steam-electric generating plants..... 529

Wohlenberg, Walter J.

Combustion radiation and the Planck quantum theory..... 852, 915, 981, 1075

Wood

See also Lumber; Timber

Heating value of..... 538

Treating for use in lining refrigerator cooling rooms..... 566

Wood, Albert C.

Industrial power..... 340

Wood Flour

Development..... 432

Wood Preservation

Treating wood for use in lining refrigeration cooling rooms (CT)..... 1004

Wood Products

Waste wood as a source..... 953

Wood Substitutes

Process employed in making..... 850

Woodworking Industry

Growth during the last half-century..... 429

Progress in..... 81, 434

Woodwork education, developments in..... 433

Woodworking Machinery

Beginnings and growth of..... 430

Wolfenden, H. L.

Boiler-metal embrittlement (C)..... 239

World Engineering Congress

Impressions of..... 243

World Power Conference

Second, reports of..... 805

Worm Gears

See Gears

Worthington, Henry Rossiter

Biography..... 290

Wright, Orville

Biography..... 300

Guggenheim medalist..... 523

Wright, Roy V.

Fifty years of transportation..... 455

Wrought Iron

Making mechanically in 700-lb. molds..... 794

X

X-Rays

Applications (BR)..... 1112

Y

Yarrow, Alfred Fernandez

Biography..... 300

Young, H. F., Deutsch, Z. G., and Larsen, A. M.

Design of steam piping to care for expansion (C)..... 1104

Young, Owen D.

International settlements..... 743

Young Plan of International Settlement

Compared with Dawes plan..... 743

Younger, John

The automotive industry..... 491

Youse, H. J.

The steam motor car (C)..... 634

Z

Zahm, Albert F.

Division of aeronautics of the Library

of Congress..... 845

Theoretical aerodynamics..... 499

Zeolite

See Feedwater, Feedwater Treatment

